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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/996,633	11/28/2001	Athanasios Agamamnon Kasapi	15685P107	3477

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BLAKELY SOKOLOFF TAYLOR & ZAFMAN
12400 WILSHIRE BOULEVARD
SEVENTH FLOOR
LOS ANGELES, CA 90025-1030

EXAMINER	
NGUYEN, TU X	
ART UNIT	**PAPER NUMBER**
2684	

DATE MAILED: 12/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

Office Action Summary	Application No.	Applicant(s)	
	09/996,633	KASAPI, ATHANASIOS AGAMAMNON	
	Examiner	Art Unit	
	Tu X Nguyen	2684	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 November 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,8,9,12-18,22-24,26-28,30-34 and 37-40* is/are rejected.

7)☒ Claim(s) *7,10,11,19-21,25,29,35 and 36* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 11/10/04, have been fully considered but they are not persuasive.

Regarding claim 1, applicant's argument that "Wallace et al. fail to disclose received signal comparison". However, Wallace et al. disclose "programmed to compare incoming signals" (see par.0059).

Applicant's argument that "there is no mention a decision to use transmission diversity based on comparing received signals. Again, there is no suggestion that a transmit mode be selected based on this or even the mobile station's link quality report be used". However, Wallace et al. disclose "if the base station determines that the mobile station has multiple receive antennas at decision diamond "selection diversity is applied at a receiver having multiple antennas, wherein a best signal among the multiple received signals is chosen....the selection unit may sample the signals and provide the best one as output" (see par.074). For transmit mode be selected, Wallace et al. disclose "If the base station determines that the mobile station has multiple receive antennas at decision diamond....A variety of indicators may be implemented to determine the MIMO mode of operation" (see par.105), and "the base station determines the C/I of the forward link to measure link quality. The mobile station may be queried to provide and indication of link quality measurement against a predetermined threshold value....., else pure diversity is applied" (see par.0106).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

3. Claims 1-6, 8-9, 12-18, 22-24, 26-28, 30-34 and 37-40, are rejected under 35 U.S.C. 102(e) as being anticipate by Wallace et al. (US Pub 2002/0193146).

Regarding claim 1, Wallace et al. disclose a method comprising:

receiving a radio signal from a remote terminal at a plurality of antennas (see par.0064, 0074);

comparing characteristics of the received signal as received at the plurality of antennas (see par.0055, 0059, 0074);

determining whether reception of radio signals transmitted to the remote terminal is likely to be improved by diversity transmission based on the comparisons (see par.0074, 0125); and

transmitting radio signals to the remote terminal using diversity if the reception is likely to be improved (see par.0065).

Regarding claims 23 and 30, Wallace et al. disclose everything as claim 1 above. More specifically, Wallace et al. disclose a machine-readable medium having stored thereon data representing instructions which, when executed by a machine, cause the machine to perform operations (see par.0123).

Regarding claims 2 and 31, Wallace et al. disclose comparing characteristics comprises determining a spatial signature of the received signal (see par.0081-0087 and par.0094).

Regarding claims 3, 13, 18 and 24, Wallace et at. disclose comparing characteristics comprises determining relative phases and amplitudes of the received signal (see par.0056).

Regarding claims 4 and 14, Wallace et al. disclose determining comprises estimating an amount of scattering of the received signal (see par.0048).

Regarding claims 5 and 15, Wallace et al. disclose estimating a level of multipath interference (see par.0035-0041).

Regarding claims 6 and 32, Wallace et al. disclose transmitting comprises transmitting a radio signal from two different spaced apart antennas (see par.0046).

Regarding claims 8 and 28, Wallace et al. disclose transmitting comprises transmitting a radio signal from the plurality of antennas with two different phase and amplitude signatures (see par.0095).

Regarding claims 9, 12, 26, 27 and 34, Wallace et al. disclose everything as claims 1 and 23 above. More specifically, Wallace et al. disclose transmitting a radio signal from the plurality of antennas with two different sets of beam forming weights (see par.0046).

Regarding claim 16, Wallace et al. disclose measuring a signal quality of the received signal (see par.0074).

Regarding claim 17, Wallace et al. disclose measuring a signal quality of the received signal as received at a plurality of antennas and comparing the measured signal qualities to each other (see par.0074).

Regarding claim 33, Wallace et al. disclose the diversity transmission comprises a first signal and at least one delayed copy of the first signal (see par.065).

Regarding claims 37-40, Wallace et al. disclose the received radio signal conforms to a standard for at least one of TDMA, GSM, DAMPS, CDMA, FDMA and TDD (see par.0034-0036)

Allowable Subject Matter

4. Claims 7, 10-11, 19-21, 25, 29, 35-36, are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Receiver claims 7 and 25, none of prior art teaching "transmitting comprises transmitting a radio signal at two different times, the times being spaced by at least the duration of one quarter of the reciprocal of the bandwidth of the modulated waveform of the radio signal" as cited in the claim.

Regarding claim 10, none of prior art teaching "setting transmit weights for a first signal and at least one delayed diversity signal copy based on the determining so that the delayed diversity signal copy receives a weight of greater magnitude if the reception is likely to be improved and a weight of lesser magnitude if the reception is not likely to be improved" as cited in the claim.

Regarding claims 19, 29 and 35, none of prior art teaching "selecting an amount of transmit diversity comprises applying weighting coefficients to a first transmitted signal and a delayed copy of the first transmitted signal, the amount of transmit diversity being greater as the magnitude of the weights are made more equivalent" as cited in the claim.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed Tu Nguyen whose telephone number is 703-305-3427. The examiner can normally be reached on Monday through Friday from 8:30AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MAUNG NAY A, can be reached at (703) 308-7745. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington. VA., Sixth Floor (Receptionist).

December 7, 2004

NAY MAUNG
SUPERVISORY PATENT EXAMINER